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10/017,186	12/07/2001	Sadeg M. Faris	Reveo-0153USAOON00	6324

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EXAMINER

CHIN, PAUL T

ART UNIT	PAPER NUMBER
3652	

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/017,186

Applicant(s)

FARIS, SADEG M.

Examiner

PAUL T. CHIN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-9 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9 and 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of the species of Figs. 2-4,6, and 10A of Group I, readable on claims 1,2,4-9, and 16-19, in Paper No. 3 is acknowledged. Moreover, the cancellation of the nonelected invention, readable on claims 3,10-15, and 20-22, is also acknowledged.

2. Applicant's election of the species of Figs. 2-4,6, and 10A of Group I, in Paper No. 3, is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Information Disclosure Statement

3. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. Moreover, the cited reference of U.S. Patent application No. 09/950,909, is not considered because of unavailability.

Specification

4. The disclosure is objected to because of the following informalities: it appears that on page 9, line 8, the reference number "140" should be changed to -- 150 -- (vacuum source).

Appropriate correction is required.

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5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 2,4-6,8, and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no antecedent basis for “*the frequency of the openings*” (claim 2, lines 1-2; claim 5, lines 1-2).

Moreover, the exact meaning of the phrase “*the frequency of the openings*” (claim 2, lines 1-2; claim 5, lines 1-2) is not clearly understood as to, particularly, the claimed language of “frequency”. The meanings of the word “frequency” are “the property or condition of occurring at frequent intervals; *Mathematics & Physics*. The number of times a specified phenomenon occurs within a specified interval, as: **a.** The number of repetitions of a complete sequence of values of a periodic function per unit variation of an independent variable. **b.** The number of complete cycles of a periodic process occurring per unit time. **c.** The number of repetitions per unit time of a complete waveform, as of an electric current; and *Statistics*. **a.** The number of measurements in an interval of a frequency distribution. **b.** The ratio of the number of times an event occurs in a series of trials of a chance experiment to the number of trials of the experiment performed” according to *The American Heritage® Dictionary of the English Language, Third Edition*.

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Further, the claimed language of claims 8 and 9 are vague and indefinite. The phrase “combinations comprising at least one of the foregoing material” particularly is confusing as to whether applicant is claiming the combinations of the materials from the group or the group with other semiconductor material.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1,2,4-6, and 16, as best understood, are rejected under 35 U.S.C. 102(b) as being clearly anticipated by **Bhandarkar et al. (5,967,577)**.

Bhandarkar et al. (5,967,577) discloses a handler for applying vacuum holding force to an object, comprising a body (Fig. 3) having a plurality of openings including a holding surface level and a suction level, wherein the openings (54,54) at the suction level are larger than the openings (42,42) at the holding level, and further wherein the openings at the suction surface level are in fluid communication with at least a portion of the openings at the holding surface level.

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Re claim 2, Bhandarkar et al.' handler (5,967,577) shows that the numbers of the openings (42,42) at the holding surface is greater than the numbers of the openings (54,54) at the suction surface level.

Re claims 4-6, Bhandarkar et al.' handler (5,967,577) further shows at least one intermediate level between the holding surface and the suction surface levels wherein the openings (50,50, or 52,52) of the intermediate level are larger than the openings (42,42) of the holding surface level and smaller than the openings (54,54) of the suction surface level. Similarly, the numbers of the openings (50,50, or 52,52) at the intermediate level is greater than the numbers of the openings at the suction surface level.

Re claim 16, Bhandarkar et al.' handler (5,967,577) further shows a handler body having a thickness (see Fig. 3) and a vacuum source (74).

10. Claims 1,2,4-7, and 16, as best understood, are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Nagoaka (6,336,492).

Nagoaka (6,336,492) discloses a handler for applying vacuum holding force to an object, comprising a body (Fig. 5) having a plurality of openings (27,25,10a) including a holding surface level and a suction level, wherein the openings ((27), (25,25), or openings on the plate (28)) at the suction level are larger than the openings (10a,10a) at the holding level, and further wherein the openings at the suction surface level are in fluid communication with at least a portion of the openings at the holding surface level.

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Re claim 2, Nagoaka's handler (6,336,492) shows that the numbers of the openings (10a, 10a) at the holding surface is greater than the numbers of the openings ((25,25), or openings on the plate (28)) at the suction surface level.

Re claims 4-6, Nagoaka's handler (6,336,492) further shows at least one intermediate level between the holding surface and the suction surface levels wherein the openings (25,25) of the intermediate level are larger than the openings (10a, 10a) of the holding surface level and smaller than the openings [(located on the plate 28) (see Fig. 5)] of the suction surface level. Similarly, the numbers of the openings (25,25) at the intermediate level is greater than the numbers of the openings [(located on the plate 28) (see Fig. 5)] at the suction surface level.

Re claim 7, Nagoaka's handler (6,336,492) further shows a valve (29) (see Fig. 5) in the one opening [(27) or (one of the openings at plate 28)] of the openings to control the fluid flow.

Re claim 16, Nagoaka's handler (6,336,492) further shows a handler body having a thickness (see Fig. 5) and a vacuum source (Fig. 3).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 8,9, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhandarkar et al.' handler (5,967,577).

Re claims 8 and 9, Bhandarkar et al.' handler (5,967,577), as presented in section 9 above, does not clearly show that *a material selection* (from the group consisting of metals,

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alloys, semiconductor materials, ceramics, and combinations comprising at least one of the foregoing materials) for the handler and *a semiconductor material* (from the group consisting of silicon, III-V type semiconductors, II-IV type semiconductors, II-VI type semiconductor, IV-VI type semiconductors, Ge, C, Si-oxide, Si-nitride, and combinations comprising at least one of the foregoing materials). However, it would have been an obvious design choice to those skilled in the art to provide *material selections of the handler and semiconductor* listed above, which are well-known in the art, on the Bhandarkar et al.' handler (5,967,577) in order to provide the desired vacuum environment.

Re claims 17-19, Bhandarkar et al.' handler (5,967,577), as presented in section 9 above, does not clearly show that *the ratio of the handler body thickness* (Fig. 3) *to the holding surface hole diameter* (42) *is about 10^7 to about 10^2 , or 10^6 to about 10^3 , or 10^5 to about 10^4 .* However, it would have been an obvious design choice to those skilled in the art to provide *the desired ratio* as listed above on the Bhandarkar et al.' handler (5,967,577) in order to manageably control the desired fluid flow.

13. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bhandarkar et al.' handler (5,967,577) in view of Tsuji (5,564,682).

Bhandarkar et al.' handler (5,967,577), as presented in section 9 above, does not clearly show *at least one micro-mechanical valve* in the at least one of the openings.

However, Tsuji (5,564,682) shows a wafer chuck *having a plurality of wafer ports or openings* (23,30) (Fig. 6) wherein *at least one mechanical valve* (31,32) is provided on at least one of the vacuum ports or openings (30,30) to control the fluid flow. Accordingly, it would

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have been an obvious to one of the ordinary skill in the art at the time the invention was made to provide *a mechanical valve or a micro-mechanical valve* on the at least one of the openings of Bhandarkar et al.' handler (5,967,577) as taught by Tsuji (5,564,682) in order to manageably control the fluid flow.

14. Claims 8,9, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagoaka's handler (6,336,492).

Re claims 8 and 9, Nagoaka's handler (6,336,492), as presented in section 10 above, does not clearly show that *a material selection* (from the group consisting of metals, alloys, semiconductor materials, ceramics, and combinations comprising at least one of the foregoing materials) for the handler and *a semiconductor material* (from the group consisting of silicon, III-V type semiconductors, II-IV type semiconductors, II-VI type semiconductor, IV-VI type semiconductors, Ge, C, Si-oxide, Si-nitride, and combinations comprising at least one of the foregoing materials). However, it would have been an obvious design choice to those skilled in the art to provide *material selections of the handler and semiconductor* listed above, which are well-known in the art, on the Nagoaka's handler (6,336,492) in order to provide the desired vacuum environment.

Re claims 17-19, Nagoaka's handler (6,336,492), as presented in section 9 above, still does not clearly show that *the ratio of the handler body thickness* (Fig. 3) *to holding surface hole diameter* (42) *is about 10^7 to about 10^2 , or 10^6 to about 10^3 , or 10^5 to about 10^4 .*

However, it would have been an obvious design choice to those skilled in the art to provide *the*

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desired ratio as listed above on the Nagoaka's handler (6,336,492) in order to manageably control the flow of the fluid.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL T. CHIN whose telephone number is (703) 305-1524. The examiner can normally be reached on MON-THURS (7:30 -6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, EILEEN LILLIS can be reached on (703) 308-3248. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9326 for regular communications and (703) 872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-1113.



PAUL T. CHIN
Examiner
Art Unit 3652

PTC
October 1, 2003